WHAT IS CLAIMED IS:

1. A resource management system for a communications system comprising:

a resource control block, wherein

said resource control block corresponds to a resource of said communications system,

said communications system comprises said resource, and

said resource control block maintains information regarding said resource.

2. The resource management system of claim 1, wherein said resource is of one resource type of a plurality of such resource types and said resource control block comprises:

a generic section, said generic section containing information applicable to a plurality of said such resource types; and

a resource-specific section, said resource-specific section containing information applicable to said one resource type.

3. The resource management system of claim 1, wherein said resource is a hardware component of said communications system.

4. The resource management system of claim 1, wherein said information includes a status of said resource.

5. The resource management system of claim 1, further comprising:

a resource manager, wherein

said communications system comprises a processor, communicatively coupled to said resource,

said processor is configured to execute said resource manager, and

said resource manager is configured to maintain said resource control block in response to communications between said processor and said resource.

6. The resource management system of claim 1, further comprising:

a plurality of resource control blocks, wherein

said resource control block is a one of said resource control blocks,

said resource manager is configured to assign an identifier to said resource control block,

said identifier uniquely identifies said resource within said communications system, and

said identifier is configured to serve as an index into a table of pointers, each of said pointers pointing to at least one of said resource control blocks.

7. The resource management system of claim 1, further comprising:

A plurality of resources, wherein

said resources include said resource,

said resources are coupled to one another in a hierarchy,

each of said resources is one of a plurality of resource types, and

all of said resources that are in a single level of said hierarchy are of a single one of said resource types; and

A plurality of resource control blocks, wherein

said resource control blocks include said resource control block, and

each of said resource control blocks correspond to one of said resources.

8. The resource management system of claim 5, wherein each of said resource control blocks comprises:

a generic section, said generic section containing information applicable to a plurality of said resource types; and

a resource-specific section, said resource-specific section being applicable to one of said resource types, a resource corresponding to said each of said resource control blocks being of said one of said resource types.

9. The resource management system of claim 5, further comprising:
a processor, communicatively coupled to said resource; and
a resource manager, wherein
said processor is configured to execute said resource manager, and
said resource manager is configured to maintain said resource control block in response to communications between said processor and said resource.

10. The resource management system of claim 7, further comprising:
a plurality of resource managers, wherein
said resource managers includes said resource manager,
each of said resource managers maintains a hierarchical list of said resource control blocks, and
said hierarchical list represents resources controlled by said each of said resource managers.

11. The resource management system of claim 8, wherein said hierarchical list is a resource list and said resource list stores information regarding said hierarchy and interdependencies of said resources.

12. The resource management system of claim 7, wherein
said resource manager is a node resource manager, and
said resource control block is a node resource control block.

13. The resource management system of claim 10, wherein
said resource manager is a node resource manager, and
said resource control block is a node resource control block.

14. The resource management system of claim 11, wherein
each one of a first plurality of said resource managers is a shelf resource manager, and
each one of a first plurality of said resource control blocks is a shelf resource control block.

15. The resource management system of claim 12, wherein

each one of a second plurality of said resource managers is a group resource manager, and

each one of a second plurality of said resource control blocks is a group resource control block.

16. The resource management system of claim 13, wherein

each one of a third plurality of said resource managers is a line card resource manager, and

each one of a third plurality of said resource control blocks is a line card resource control block.

17. The resource management system of claim 14, wherein

each one of a second plurality of said resource control blocks contains information from at least one of said third plurality of said resource control blocks,

each one of a first plurality of said resource control blocks contains information from at least one of said second plurality of said resource control blocks, and

said resource control block contains information from at least one of said first plurality of said resource control blocks.

18. A resource management system for a communications system comprising:

a resource manager, wherein

said communications system includes a system processor having a resource communicatively coupled thereto, and

said system processor is configured to execute said resource manager.

19. The resource management system of claim 18, wherein

said data structure is a resource control block,

said system processor is configured to create said resource control block.

20. The resource management system of claim 19, wherein said resource manager is further configured to maintain said information in response to communications between said system processor and said resource.

21. The resource management system of claim 20, wherein said information is status information.

22. The resource management system of claim 20, wherein said resource manager causes said processor to create said resource control block.

23. The resource management system of claim 20, wherein said resource is a hardware component of said communications system.

24. The resource management system of claim 20, further comprising:
a system resource control block, wherein said system resource control block maintains information regarding a status of said system processor.

25. The resource management system of claim 20, further comprising:
a plurality of resource control blocks, wherein
said resource control block is a one of said resource control blocks,
said resource manager is configured to assign an identifier to said resource control block,
said identifier uniquely identifies said resource within said communications system, and
said identifier is configured to serve as an index into a table of pointers, each of said pointers pointing to at least one of said resource control blocks.

26. The resource management system of claim 20, wherein said resource is one of a first plurality of resources, where each one of said first plurality of resources is coupled to said system processor,

said resource control block is one of a first plurality of resource control blocks, and

each one of said first plurality of resource control blocks is stored on a corresponding one of said first plurality of resources.

27. The resource management system of claim 26, further comprising:

a plurality of resource managers, wherein

each one of said plurality of resource managers runs on a corresponding one of said first plurality of resources and maintains a corresponding one of said first plurality of resource control blocks, and

at least one of said plurality of resource managers is configured specifically for a one of said first plurality of resources running said at least one of said plurality of resource managers.

28. The resource management system of claim 26, further comprising

a second plurality of resources, wherein

at least one of said second plurality of resources is coupled to said each one of said first plurality of resources, and

said each one of said first plurality of resources comprises a resource processor;

a plurality of resource managers, each resource processor of said first plurality of resources configured to run a corresponding one of said first plurality of resource managers; and

a second plurality of resource control blocks, wherein

each one of said second plurality of resource control blocks maintains information regarding a status of a one of said second plurality of resources,

said each resource processor of said first plurality of resources is configured to maintain a one of said second plurality of resource control blocks corresponding to said at least one of said second plurality of resources in response to

communications with said at least one of said second plurality of resources.

29. The resource management system of claim 26, wherein said system processor is configured to maintain information regarding said one of said second plurality of resource control blocks corresponding to said at least one of said second plurality of resources in response to communications with said at least one of said second plurality of resources and a corresponding one of said each resource processor of said first plurality of resources.

30. The resource management system of claim 20, wherein said resource manager is further configured to maintain network resource information, said network resource information corresponding to resources available to said system processor via a network to which said communications system is coupled.

31. A method of managing a communications system, said method comprising:

creating a resource control block corresponding to a resource of said communications system, wherein

said communications system comprises a processor and said resource,

said resource is coupled to said processor, and

said resource control block maintains information regarding a status of said resource.

32. The method of claim 31, wherein said resource is a hardware component of said communications system.

33. The method of claim 31, further comprising:

assigning an identifier to said resource control block, wherein

said resource control block is a one of a plurality of resource control blocks,

said identifier uniquely identifies said resource within said communications system, and

said identifier is configured to serve as an index into a table of pointers, each of said pointers pointing to at least one of said resource control blocks.

34. The method of claim 31, further comprising:
maintaining said resource control block, wherein
said processor is configured to maintain said resource control block,
said resource control block is maintained by said processor in response to communications between said processor and said resource.

35. The method of claim 34, further comprising:
creating a processor resource control block corresponding to said processor.

36. The method of claim 34, further comprising:
receiving a power-up message from said resource, wherein said resource control block is created by said processor in response to said power-up message from said resource.

37. The method of claim 34, further comprising:
maintaining said resource control block in response to a keep-alive message from said resource.

38. The method of claim 34, further comprising:
maintaining said resource control block in response to a reply from said resource generated in response to a protocol message sent by said processor.

39. The method of claim 34, wherein a protocol is employed in said communications with said resource.

40. The method of claim 34, wherein
said protocol supports protocol messages is configured to cause
initialization of said resource,
said processor to download a command to said resource,

said resource to execute said command,
said resource to provide status information to said processor, and
said resource to perform a self-test.

41. The method of claim 34, further comprising
for each one of a plurality of resources, creating a resource control block for each of said resources coupled to said each one of said resources, wherein
said resource is one of said resources,
each one of said resources is communicatively coupled to at least one other of said resources,
said resources are arranged in a hierarchy having a plurality of levels, and
said each of said resources coupled to said each one of said resources is at a one of said levels below a one of said levels of said each one of said resources.

42. The method of claim 41, further comprising:
maintaining each one of said resource control blocks on a corresponding one of said resources, wherein
a one of a plurality of resource managers corresponding to said each one of said resource control blocks performs said maintaining of said each one of said resource control blocks; and
maintaining a resource list for each one of said resource managers, wherein
each of said resource lists is a hierarchical list of ones of said resource control blocks that correspond to ones of said resources under control of a one of said resources corresponding to said each one of said resource managers.

43. The method of claim 42, wherein said resource list represents at least a portion of said hierarchy and interdependencies between ones of said resources.

44. A communications system comprising:
a processor;
a resource, coupled to said processor;
computer readable medium coupled to said processor; and
computer code, encoded in said computer readable medium, configured to cause said processor to:
create a resource control block corresponding to said resource, wherein said resource control block maintains information regarding a status of said resource.

45. The computer system of claim 44, wherein said resource is a hardware component of said communications system.

46. The computer system of claim 44, wherein said computer code is further configured to cause said processor to:
assign an identifier to said resource control block, wherein
said resource control block is a one of a plurality of resource control blocks,
said identifier uniquely identifies said resource within said communications system, and
said identifier is configured to serve as an index into a table of pointers, each of said pointers pointing to at least one of said resource control blocks.

47. The computer system of claim 44, wherein said computer code is further configured to cause said processor to:
maintain said resource control block, wherein
said processor is configured to maintain said resource control block,
said resource control block is maintained by said processor in response to communications with said resource.

48. The computer system of claim 47, wherein said computer code is further configured to cause said processor to:

create a processor resource control block corresponding to said processor.

49. The computer system of claim 47, wherein said computer code is further configured to cause said processor to:

receive a power-up message from said resource, wherein said resource control block is created by said processor in response to said power-up message from said resource.

50. The computer system of claim 47, wherein said computer code is further configured to cause said processor to:

maintain said resource control block in response to a keep-alive message from said resource.

51. The computer system of claim 47, wherein said computer code is further configured to cause said processor to:

maintain said resource control block in response to a reply from said resource generated in response to a protocol message sent by said processor.

52. The computer system of claim 47, wherein a protocol is employed in said communications with said resource.

53. The computer system of claim 52, wherein

said protocol supports protocol messages configured to cause

initialization of said resource,

said processor to download a command to said resource,

said resource to execute said command,

said resource to provide status information to said processor, and

said resource to perform a self-test.

54. The computer system of claim 47, wherein said computer code is further configured to cause said processor to:

for each one of a plurality of resources, create a resource control block for each of said resources coupled to said each one of said resources, wherein

said resource is one of said resources,

each one of said resources is communicatively coupled to at least one other of said resources,

said resources are arranged in a hierarchy having a plurality of levels,

said each of said resources coupled to said each one of said resources is at a one of said levels below a one of said levels of said each one of said resources.

55. The computer system of claim 54, wherein said computer code is further configured to cause said processor to:

maintain each one of said resource control blocks on a corresponding one of said resources, wherein

a one of a plurality of resource managers corresponding to said each one of said resource control blocks performs said maintaining of said each one of said resource control blocks; and

maintain a resource list for each one of said resource managers, wherein

each of said resource lists is a hierarchical list of ones of said resource control blocks that correspond to ones of said resources under control of a one of said resources corresponding to said each one of said resource managers.

56. The computer system of claim 55, wherein said resource list represents at least a portion of said hierarchy and interdependencies between ones of said resources.

57. A computer program product encoded in computer readable media, said computer program product comprising:

a first set of instructions, executable on a computer system, configured to

create a resource control block corresponding to a resource of a communications system coupled to a processor of said communications system, wherein

said resource control block maintains information regarding a status of said resource.

58. The computer program product of claim 57, wherein said resource is a hardware component of said communications system.

59. The computer program product of claim 57, further comprising:

a second set of instructions, executable on said computer system, configured to assign an identifier to said resource control block, wherein

said resource control block is a one of a plurality of resource control blocks,

said identifier uniquely identifies said resource within said communications system, and

said identifier is configured to serve as an index into a table of pointers, each of said pointers pointing to at least one of said resource control blocks.

60. The computer program product of claim 57, further comprising:

a second set of instructions, executable on said computer system, configured to maintain said resource control block, wherein

said processor is configured to maintain said resource control block,

said resource control block is maintained by said processor in response to communications with said resource.

61. The computer program product of claim 60, further comprising:
a third set of instructions, executable on said computer system, configured to
create a processor resource control block corresponding to said
processor.

62. The computer program product of claim 60, further comprising:
a third set of instructions, executable on said computer system, configured to
receive a power-up message from said resource, wherein said resource
control block is created by said processor in response to said power-up
message from said resource.

63. The computer program product of claim 57, further comprising:
a third set of instructions, executable on said computer system, configured to
maintain said resource control block in response to a keep-alive
message from said resource.

64. The computer program product of claim 60, further comprising:
a third set of instructions, executable on said computer system, configured to
maintain said resource control block in response to a reply from said
resource generated in response to a protocol message sent by said
processor.

65. The computer program product of claim 60, wherein a protocol is employed in said communications with said resource.

66. The computer program product of claim 65, wherein
said protocol supports protocol messages configured to cause
initialization of said resource,
said processor to download a command to said resource,
said resource to execute said command,
said resource to provide status information to said processor, and
said resource to perform a self-test.

67. The computer program product of claim 60, further comprising:

a third set of instructions, executable on said computer system, configured to create, for each one of a plurality of resources, a resource control block for each of said resources coupled to said each one of said resources, wherein

said resource is one of said resources,

each one of said resources is communicatively coupled to at least one other of said resources,

said resources are arranged in a hierarchy having a plurality of levels,

said each of said resources coupled to said each one of said resources is at a one of said levels below a one of said levels of said each one of said resources.

68. The computer program product of claim 67, further comprising:

a fourth set of instructions, executable on said computer system, configured to maintain each one of said resource control blocks on a corresponding one of said resources, wherein

a one of a plurality of resource managers corresponding to said each one of said resource control blocks performs said maintaining of said each one of said resource control blocks; and

a fifth set of instructions, executable on said computer system, configured to maintain a resource list for each one of said resource managers, wherein

each of said resource lists is a hierarchical list of ones of said resource control blocks that correspond to ones of said resources under control of a one of said resources corresponding to said each one of said resource managers.

69. The computer program product of claim 68, wherein said resource list represents at least a portion of said hierarchy and interdependencies between ones of said resources.

70. An apparatus for managing a communications system, said method comprising:

means for creating a resource control block corresponding to a resource of said communications system, wherein

said communications system comprises a processor and said resource,

said resource is coupled to said processor, and

said resource control block maintains information regarding a status of said resource.

71. The apparatus of claim 70, wherein said resource is a hardware component of said communications system.

72. The apparatus of claim 70, further comprising:

means for assigning an identifier to said resource control block, wherein

said resource control block is a one of a plurality of resource control blocks,

said identifier uniquely identifies said resource within said communications system, and

said identifier is configured to serve as an index into a table of pointers, each of said pointers pointing to at least one of said resource control blocks.

73. The apparatus of claim 70, further comprising:

means for maintaining said resource control block, wherein

said processor is configured to maintain said resource control block,

said resource control block is maintained by said processor in response to communications with said resource.

74. The apparatus of claim 73, further comprising:

means for creating a processor resource control block corresponding to said processor.

75. The apparatus of claim 73, further comprising:
means for receiving a power-up message from said resource, wherein said resource control block is created by said processor in response to said power-up message from said resource.

76. The apparatus of claim 73, further comprising:
means for maintaining said resource control block in response to a keep-alive message from said resource.

77. The apparatus of claim 73, further comprising:
means for maintaining said resource control block in response to a reply from said resource generated in response to a protocol message sent by said processor.

78. The apparatus claim 73, wherein a protocol is employed in said communications with said resource.

79. The apparatus of claim 73, wherein
said protocol supports protocol messages is configured to cause
initialization of said resource,
said processor to download a command to said resource,
said resource to execute said command,
said resource to provide status information to said processor, and
said resource to perform a self-test.

80. The apparatus of claim 73, further comprising
means for creating, for each one of a plurality of resources, a resource control block for each of said resources coupled to said each one of said resources, wherein
said resource is one of said resources,
each one of said resources is communicatively coupled to at least one other of said resources,

said resources are arranged in a hierarchy having a plurality of levels, and

said each of said resources coupled to said each one of said resources is at a one of said levels below a one of said levels of said each one of said resources.

81. The apparatus of claim 80, further comprising:

means for maintaining each one of said resource control blocks on a corresponding one of said resources, wherein

a one of a plurality of resource managers corresponding to said each one of said resource control blocks is configured to perform maintenance of said each one of said resource control blocks; and

means for maintaining a resource list for each one of said resource managers, wherein

each of said resource lists is a hierarchical list of ones of said resource control blocks that correspond to ones of said resources under control of a one of said resources corresponding to said each one of said resource managers.

82. The apparatus of claim 81, wherein said resource list represents at least a portion of said hierarchy and interdependencies between ones of said resources.